An implementation of a road traffic simulator for a crossroad intersection with a single lane for each direction of travel.

The intersection is equipped with traffic lights on each intersection entrance lane (4 traffic lights in total) and a controller that controls the switching of traffic lights. Intersection entry lanes provide information on the length of the queues (the number of cars waiting to enter the intersection). The arrival of the cars on the input lanes is done randomly.

The intersection controller respect the following constraints: the intersection cycle is fixed at 100 seconds, the intersection cycle is assigned in varying intervals to each traffic light so that in one cycle all traffic lights have been switched to green once, the minimum duration that a traffic light can remain on the green color is 5 seconds, at a time only one traffic light can be switched to green, the duration for which a traffic light remains on the green color is calculated by the controller according to the number of cars at the queue on the entrance lane in intersection after an algorithm that remains at the choice of the programmer.

The intersection input lane has a maximum capacity, if exceeded will generate an error.